REMARKS

Claims 1-31 and 33 are currently pending in the subject application. Claims 1-25 and 33 are presently under consideration. Claims 1, 2, 7-10, 12, 13, 16-18, 24, 25, and 33 have been amended herein to better describe certain aspects of the invention. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

Amendments

The independent claims have been amended in two ways. First, the function of the functional zone is described with better clarity. Second, the structure of the functional zone that provides the described function is also described with better clarity. Support for the amendments exist in the specification, for example, on page 9, last full paragraph; page 14, first two full paragraphs; among others.

Rejection of Claims 1–7 & 33 Under 35 U.S.C. §102(b)

Claims 1-7 and 33 stand rejected under 35 U.S.C. §102(b) as being anticipated by Kobayashi et al (US 6,245,601). Kobayashi et al relates to a photoelectric converter made of (see Fig. 6A) a lower electrode (2), an insulation layer (70), a photoelectric conversion semiconductor layer (4) containing hydrogenated amorphous silicon, an n+ injection blocking layer (5) to block injection of holes into the photoelectric conversion semiconductor layer (4), and a transparent electrode (6).

To establish anticipation, each and every claim feature must be disclosed in a single cited art document. Claims 1 and 33 require a functional media that stores information based on a change of an impedance state, the impedance state of the functional media changes based on a migration of electrons or holes when subject to an external electric field or light radiation, the impedance state indicative of information content. Kobayashi et al fails to disclose a functional

media that stores information based on a change of an impedance state as required by claims 1 and 33.

Furthermore, claims 1 and 33 require a functional media containing 1) an active layer having an ability to donate and accept charges and 2) a passive layer comprising a conductivity facilitating compound having at least two stable oxidation-reduction states and an ability to donate and accept charges, the active layer having a thickness that is about 0.1 to about 500 times greater than a thickness of the passive layer. Kobayashi et al fails to disclose a functional media containing 1) an active layer having an ability to donate and accept charges and 2) a passive layer comprising a conductivity facilitating compound having at least two stable oxidation-reduction states and an ability to donate and accept charges, the active layer having a thickness that is about 0.1 to about 500 times greater than a thickness of the passive layer.

Since Kobayashi et al does not disclose all of the claimed features, namely the functional media that stores information based on a change of an impedance state and since Kobayashi et al does not disclose the active layer having an ability to donate and accept charges and passive layer comprising a conductivity facilitating compound having at least two stable oxidation-reduction states and an ability to donate and accept charges, the active and passive layers having certain defined thicknesses, Kobayashi et al cannot anticipate claims 1-7 and 33.

Rejection of Claims 8–25 Under 35 U.S.C. §103(a)

Claims 8–25 stand rejected under 35 U.S.C. §103(a) as being obvious over Kobayashi et al in view of Clausen et al (US 6,272,038). Claussen et al relates to non-volatile memory devices with porphyrinic macrocycles. However, Clausen et al does not make up for the aforementioned deficiencies of Kobayashi et al with respect to the independent claims.

Both Kobayashi et al and Claussen et al clearly fail to teach or suggest an active layer having an ability to donate and accept charges and a passive layer comprising a conductivity facilitating compound having at least two stable

oxidation-reduction states and an ability to donate and accept charges, as well as the certain defined thicknesses of the active and passive layers. Notably, both Kobayashi et al and Claussen et al clearly fail to teach or suggest a passive layer comprising a conductivity facilitating compound having at least two stable oxidation-reduction states and an ability to donate and accept charges. Neither the insulation layer (70) nor the n+ injection blocking layer (5) of Kobayashi et al are equivalent to the passive layer of the claims. There is no layer even remotely similar to the passive layer of the claims in Claussen et al.

Since Kobayashi et al and Claussen et al fail to teach or suggest an active layer and a passive layer comprising a conductivity facilitating compound as well as the certain defined thicknesses of the active and passive layers, one skilled in the art would not have been motivated by Kobayashi et al and Claussen et al to make the memory devices of the claims.

Moreover, the following additional comments are provided to further distinguish the primary cited art: Kobayashi et a. The subject invention as claimed relates to semiconductor memory devices with a functional media, wherein the functional media stores information based on a change of an impedance state. Such impedance state changes based on a migration of electrons or holes when the memory device is subject to an external electric field or light radiation – (the functional zone includes passive and active layers that allow for obtaining a plurality of states for the memory cell, such as representing "0", "1".) For example, to read information from the memory device, a voltage or electric field can be applied thereto, and an impedance for the device measured to determine an operating state of "on" (1) or "off" (0). In this connection, independent claim 1 recites: "the functional media stores information based on a change of an impedance state." Likewise, independent claim 33 recites "change an impedance state [...] and store information content [...]." Such aspects of the claimed invention are not taught nor suggested by Kobayashi et al.

Rather, Kobayashi et al is directed to improvements of signal-to-noise (SN) ratio for a photoelectric converter. The layering substrate arrangements depicted in Kobayashi et al (*e.g.*, Fig. 6) are directed to photoelectric conversion

element(s), and not a memory device with a state indicative of information content as recited in the subject claims. Moreover, the "On-Off" switching mechanism (110) of Kobayashi et al. is external to the photoelectric conversion element 100, and does not function as the memory state change of applicants' claimed invention.

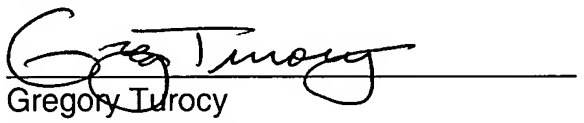
In light of the significant structural and functional differences between Kobayashi et al-Claussen et al and the claims, one skilled in the art would not have been motivated to make the memory devices of the claims based on the disclosures within Kobayashi et al and Claussen et al. The claims are thus nonobvious and therefore patentable over the cited art.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

AMIN & TUROCY, LLP



Gregory Turocy
Reg. No. 36,952

AMIN & TUROCY, LLP
24TH Floor, National City Center
1900 E. 9TH Street
Cleveland, Ohio 44114
Telephone (216) 696-8730
Facsimile (216) 696-8731